

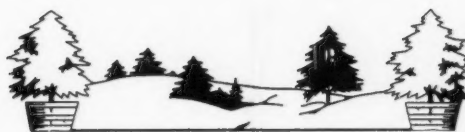
American Society for Testing Materials BULLETIN

ISSUED



BI MONTHLY

Christmas Greetings



December, 1930



ENGINEERS' CLUB BUILDING
1315 SPRUCE ST., PHILADELPHIA

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American Society for Testing Materials



BULLETIN

ENGINEERS' CLUB BUILDING

1315 SPRUCE STREET

PHILADELPHIA, PA.

NUMBER 47

DECEMBER 20, 1930

Pittsburgh Regional Meeting, March 18

A REGIONAL MEETING—the second to be sponsored by the Society—will be held in Pittsburgh on Wednesday, March 18, 1931. The meeting is under the auspices of the Pittsburgh members of the Society who are acting through the Pittsburgh District Committee, of which Past-President T. D. Lynch is chairman. The first regional meeting, held in Detroit last year, was so successful in arousing interest in the work of the Society and in contributing to the knowledge of materials that other district committees have asked that similar regional meetings be arranged in other sections of the country. The present regional meeting planned for Pittsburgh is a direct outcome.

The standing committees have indicated that Pittsburgh would be quite satisfactory for holding the Spring Group Committee Meeting and accordingly it is definitely planned to hold the Group Meeting in Pittsburgh during the week in which the regional meeting is held. All meetings will be held in the Hotel William Penn.

Technical Program a Symposium on Welding

The committee, with the cooperation of the Pittsburgh Section of the American Welding Society, is arranging for a Symposium on Welding. Such a symposium will be of considerable interest to the industries of the Pittsburgh district—in fact, will bring out information of value to the industries of the country at large—and comes at an opportune time in view of the increasing interest in this subject. It is of such importance that two sessions will be devoted to the presentation of papers and the discussions thereon. One session will be held in the morning and the other in the afternoon. Practically all of the details in connection with the papers have been arranged, although there are still one or two uncertainties in respect to authorship. The proposed papers are listed below:

SYMPOSIUM ON WELDING

Morning Session

1. Historical Introduction and General Survey. F. T. Llewellyn, Technical Advisor to the President, U. S. Steel Corp.
2. The Quality of Materials for Welding. F. N. Speller and C. R. Textor, National Tube Co.
3. Technical Examples of Modern Welding Practice. A. M. Candy, General Engineer, Westinghouse Electric and Manufacturing Co.

Afternoon Session

4. The Inspection and Testing of Welded Products.
 - (a) Fatigue and Impact Tests for Welded Connections.
 - (b) X-ray Testing.
 - (c) Magnetic Testing.
 - (d) Stethoscopic Examination of Welded Products.
 - (e) Practical Inspection of Finished Welded Products.

The paper on Technical Examples of Modern Welding Practice is a contribution from the American Welding Society and the paper on Quality of Materials for Welding is being sponsored by Subcommittee XXI on Steel for Welding of the Society's Committee A-1 on Steel.

Mr. K. G. Mackenzie, President of the Society, will preside at the morning session and Past-President F. M. Farmer, a past-president and active member of the American Welding Society, will preside at the afternoon session. Mr. L. R. Gurley, chairman of the Pittsburgh Section of the American Welding Society, will act as vice-chairman at both sessions. It is expected that the discussion contributed will be quite informative and of considerable value in advancing the general subject of welding.

Informal Dinner in Evening

The Regional Meeting will close with an informal dinner, which our Pittsburgh hosts promise will be an outstanding affair that no one will wish to miss. Plans for a feature of more than ordinary interest have been made and it is expected that the committee will be in a position to say more about this feature and others of the dinner in the next issue of the BULLETIN.

All Members of the Society Invited

All members of the Society are invited to attend the meeting. Invitations and notices, together with other details of the meeting and dinner will be mailed to each member well in advance. The members are asked, however, to note the date now, March 18, 1931, Hotel William Penn, Pittsburgh.

The District Committee is planning to invite in addition to the members of the Pittsburgh Section of the American Welding Society, which is definitely cooperating in the arrangements, the members of the Engineering Society of Western Pennsylvania and the members of the local sections of the national engineering societies.

Group Committee Meeting

As mentioned above the standing committees of the Society will hold the annual Spring Group Committee Meeting in conjunction with the Regional Meeting. All of the meetings will be held at the Hotel William Penn which offers excellent meeting facilities. The meeting will extend over the dates Monday, March 16, to Friday, March 20. The technical sessions scheduled for the Regional meeting and the dinner on Wednesday evening will be of such general interest that it is hoped and expected that a large number of committee members attending the Pittsburgh meetings will participate also in the Regional Meeting. The Pittsburgh Committee welcomes the opportunity to act as host for the committees and will do everything possible to promote the success of the meetings. For those who wish to take advantage of them, visits to many of the interesting industrial plants will be arranged.

As has been the case during the past two years, arrangements will be made with the railroad passenger associations for the granting of the certificate plan of transportation whereby members save one-fourth the round-trip fare to Pittsburgh. Further announcements, including room rates and reservations at the hotel, and schedule of committee meetings will be made at a later date.

The following committees are in charge of arrangements for the meeting:

Pittsburgh District Committee

T. J. Lynch, <i>Chairman</i>	Dean Harvey
F. M. Howell, <i>Secretary</i>	Max Hecht
James Aston	C. F. W. Rys
C. F. Buente	W. A. Selvig
R. H. Dibble	J. J. Shuman
E. H. Dix, Jr.	F. N. Speller
A. R. Ellis	Thomas Spooner
P. J. Freeman	Jerome Strauss

Program Committee

Dean Harvey, <i>Chairman</i>	L. R. Gurley (Representing
C. F. Buente	Am. Welding Soc.)
A. M. Candy (Representing	F. M. Howell
Am. Welding Soc.)	J. O. Leech
E. H. Dix, Jr.	W. A. Selvig
	Jerome Strauss

Meetings and Entertainment Committee

P. J. Freeman, <i>Chairman</i>	Max Hecht
James Aston	F. M. Howell
R. H. Dibble	J. J. Shuman
A. R. Ellis	T. Spooner

1931 Annual Meeting in Chicago

The 1931 Annual Meeting, to be held at The Stevens in Chicago, June 22 to 26, already looms as a very interesting meeting with an impressive technical program. The meeting will be unique in that at least two of the sessions will be joint sessions with the American Society of Mechanical Engineers in sponsoring a Symposium on Effect of Temperature on the Properties of Metals arranged under the auspices of the Joint Research Committee, of the A.S.T.M. and A.S.M.E., on Effect of Temperature on the Properties of Metals. It is also planned to hold a joint session with the Western Society of Engineers with a program devoted to the discussion of the significance of specifications in certain major industries of the Chicago district.

Definite plans have also been made for a Symposium on Weathering Characteristics of Masonry Materials and a Symposium on Malleable Iron Castings. There is also the possibility of a discussion on abrasion testing of rubber. Details concerning the symposiums on effect of temperature on the properties of metals and on malleable iron castings are given elsewhere in this BULLETIN.

Symposium on Malleable Iron Castings

One of the features of the 1931 Annual Meeting of the Society in June will be a Symposium on Malleable Iron Castings, the purpose of which will be to put before engineers in concise form authoritative critical data on the properties of malleable iron castings. This symposium is sponsored jointly by the American Foundrymen's Association and the A.S.T.M. In addition to the submission of data there will be discussions of properties that may not at present be capable of completely authoritative treatment but which may have significant bearing upon engineering applications of the product.

The symposium will be divided into two parts, the first part being the submission of data on the properties of malleable iron castings and the second part the presentation of separate papers.

Part I—Data on Properties of Castings

Tabular and graphical presentations of data on the following properties are contemplated:

A—Physical Constants

Density
Coefficient of expansion
Specific heat

B—Mechanical Properties

Tensile properties
Tensile strength
Yield point
Elongation
Reduction of area
Modulus of elasticity in tension
Compression properties
Compressive strength
Yield point in compression
Modulus of elasticity in compression
Shearing strength
Transverse strength
Modulus of rupture
Maximum deflection
Torsional properties
Ultimate shearing strength in torsion
Ultimate twist or torque
Impact properties
Charpy impact value
Wedge test
Brinell hardness
Endurance fatigue limit

C—Electrical and Magnetic Properties

Resistivity
Permeability

D—Microstructure

E—Machineability

F—Heat Treatment Effect

Part II—Presentation of Papers

Papers on the following subjects are in prospect:

Relation between tensile strength and elongation of malleable iron
Corrosion-resistant properties of malleable iron
Resistance to embrittlement of malleable iron by galvanizing, and its relation to tensile strength
Relation of tests bars to properties of castings

Offers of Papers

Attention is called to the solicitation of papers for the 1931 annual meeting issued in the Circular to Members No. 210 forwarded under date of December 1. This call for papers is sent out quite early in order that the program might be completely developed at an early date. The limiting date fixed for receipt of offers is February 23, 1931, and all members who have in mind offering papers for the 1931 Annual Meeting are urged to have such offers in the hands of the Secretary-Treasurer together with synopses of the proposed papers well in advance of that date.

Symposium on Effect of Temperature

As announced elsewhere in this BULLETIN one of the features of the 1931 Annual Meeting, to be held in Chicago next June, will be a Symposium on Effect of Temperature on the Properties of Metals, intended to afford an opportunity to discuss the engineers' needs for alloys to withstand high temperatures and high stresses and what the possibilities and limitations of available alloys are. The symposium will comprise two sessions of the meeting, under the joint sponsorship of the American Society of Mechanical Engineers and the A.S.T.M. The program is being arranged under the auspices of the Joint Research Committee of the A.S.M.E. and A.S.T.M. on Effect of Temperature on the Properties of Metals with the cooperation of the various other committees and divisions of the two societies dealing with allied fields.

Since most attention is focused on high temperature properties, the committee is generally known as the Joint High Temperature Committee. This committee has, for several years, been developing and accumulating and correlating data. In 1924, it sponsored a symposium at which were presented the data available at that time. Two bibliographies and several noteworthy papers have been published by the committee or its members since then.

So much further information is now available, and the demand for more widespread distribution of such information has become so general, that the committee plans a second symposium to record progress, and discuss the "state of the art." The subject is now so ramified that in order to deal with it adequately, it is necessary to resort to an innovation in technical society symposiums.

The various subjects will be fully dealt with in papers which will be preprinted in ample time for digestion before the meeting. Information on individual topics will be collected and summarized by various authors. The general situation will then be summarized, and the subject thrown open to discussion on all the papers without reading or even abstracting each separate paper. The printed papers will then serve as a full record of known facts, while the session itself will be a broad-gage discussion or "round-table."

The symposium will deal with the subject from the engineering point of view, one session taking up the needs of the industry, the requirements of different industries and processes, how far and by what alloys they are met at present, what needs are yet unfilled, and especially the trends of process development as affecting the materials of construction. That is, that session will put matters squarely up to the metallurgist, indicating to him what he must attempt to provide in the way of improved alloys for service at high and low temperatures.

At the second session the metallurgists will describe the good and bad properties of alloys now in use or ready for use, and will show what the user must do in the design and operation of equipment to make the most of the good qualities and minimize the effects of the poor ones.

The sessions will deal with what is needed and what is available in the way of alloys to resist oxidation, attack of sulfur and its compounds or other corrosive agents, erosion and abrasion, impact and prolonged stress. Dimensional changes with time, such as "creep and growth," and changes in properties, such as loss of strength and advent of embrittlement, will be discussed, as will the coefficient of expansion.

The papers dealing with individual topics will not merely reflect the opinions of the author, but will represent a cross-section of all he can find out on his topic from all sources.

This advance notice is designed to stimulate those who may have facts, opinions, queries or points of view to offer, to communicate with those in charge of the topic in which they are interested.

The tentative outline, and the list of those in charge of the topics, follows:

SESSION 1—TRENDS IN THE ENGINEERING REQUIREMENTS FOR METALS AT HIGH AND LOW TEMPERATURES

A. Domestic Trends.

1. THE POWER PLANT INDUSTRY. Boilers, turbines, piping, valves, stokers, conveyors, etc.
Alfred Iddles, Day & Zimmerman, Inc., Philadelphia, Pa.
2. THE OIL INDUSTRY. Stills, cracking equipment, piping, hot oil pumps, etc.
E. S. Dixon, Metallurgist, The Texas Co., Port Arthur, Tex.
3. CHEMICAL INDUSTRIES. Nitrogen fixation, etc., etc.
F. H. Rhodes, Professor of Industrial Chemistry, Baker Lab., Cornell University, Ithaca, N. Y.
4. METAL INDUSTRIES. Roasting and smelting, heat-treating, and other furnaces; galvanizing, etc.
J. C. Woodson, Mgr., Industrial Heating Dept., Westinghouse Electric and Manufacturing Co., Mansfield, Ohio
and
Robert Brown, Metallurgist, Electro Metallurgical Corp., San Francisco, Calif.
5. AUTOMOTIVE INDUSTRIES. Pistons, cylinders, radiators, valves and valve springs, bearings, Diesel engines, etc.
A. L. Boegehold, Metallurgist, Research Labs., General Motors Corp., Detroit, Mich.
and
J. B. Johnson, Chief, Materials Branch, Wright Field, Dayton, Ohio.
6. THE CERAMIC INDUSTRIES. Molds for glass, rolls for plate glass, pyrometer tubes, cement kilns, steel for enameling, etc.
C. E. Williams, Assistant Director, Battelle Memorial Inst., Columbus, Ohio.

B. Foreign Trends.

7. THE ENGLISH ENGINEERING AND METALLURGICAL PRACTICE.
J. H. S. Dickinson, Director of Research, English Steel Corp., Sheffield, England
and
R. W. Bailey, Metropolitan-Vickers.
8. GERMAN THOUGHT AND EXPERIENCE ON NEEDS OF INDUSTRY FOR ALLOYS FOR HIGH-TEMPERATURE USE AND PROPERTIES OF AVAILABLE ALLOYS.
Benno Strauss, Gusstahlfabrik, Fried. Krupp, A. G., Essen, Germany, Dr. Schottsky and Dr. Schafmeister.
9. FRENCH TRENDS. Author to be determined.

The papers of this session will be summarized by L. W. Spring, Chief Chemist, The Crane Co., Chicago, Ill., Chairman, Committee on Projects, Joint High Temperature Committee.

SESSION 2—THE PROPERTIES OF AVAILABLE MATERIALS FOR HIGH AND LOW TEMPERATURE SERVICE

10. ZINC ALLOYS.
Harvey A. Anderson, Metallurgical Development Engr., Western Electric Co., Hawthorne Station, Chicago, Ill.
11. ALUMINUM ALLOYS.
R. L. Templin, Chief Engineer of Tests, Aluminum Co. of America, New Kensington, Pa.
12. BEARING METALS.
E. R. Darby, Metallurgist, Federal-Mogul Corp., Detroit, Mich.
13. COPPER ALLOYS.
W. H. Bassett, Technical Superintendent and Metallurgist, American Brass Co., Waterbury, Conn.
14. WROUGHT CARBON AND LOW ALLOY STEELS.
A. P. Spooner, Engineer of Tests, Bethlehem Steel Co., Ind., Bethlehem, Pa.
and
F. B. Foley, Superintendent, Research Dept., Midvale Co., Nicetown, Philadelphia, Pa.

15. CAST CARBON AND LOW-ALLOY STEELS.
R. A. Bull, Director, Electric Steel Founders' Research Group, Chicago, Ill.
16. CAST AND MALLEABLE IRONS.
H. Bornstein, Metallurgist, Deere and Co., Moline, Ill.
17. WROUGHT AUSTENITIC STEELS (Ni Cr Steel, etc.).
E. C. Bain, Metallurgist, Research Lab., U. S. Steel Corp., Kearny, N. J.
18. CAST AUSTENITIC ALLOYS AND OTHER HEAT-RESISTING SPECIAL ALLOY CASTINGS.
N. B. Pilling, C. A. Crawford and V. R. Worthington, Metallurgists, International Nickel Co., Bayonne, N. J.
19. OTHER CHROMIUM BASE ALLOYS.
C. E. MacQuigg, Director, Union Carbide and Carbon Research Lab., Long Island City, N. Y.
20. OTHER NI BASE ALLOYS.
N. B. Pilling, Metallurgist, International Nickel Co., Bayonne, N. J.
21. RARE METAL ALLOYS.
W. H. Swanger, Metallurgist, U. S. Bureau of Standards, Washington, D. C.
22. NITRIDED ALLOYS.
O. E. Harder, Assistant Director, Battelle Memorial Inst., Columbus, Ohio.
23. LOW TEMPERATURE PROPERTIES OF SOME ALLOYS.
H. W. Russell, Chief Physicist, Battelle Memorial Inst., Columbus, Ohio.
24. THERMAL EXPANSION PROPERTIES OF METALS AND ALLOYS.
N. L. Mochel, Metallurgical Engineer, Westinghouse Electric & Manufacturing Co., Lester Station, Philadelphia, Pa.
25. BIBLIOGRAPHY OF RECENT PUBLICATIONS ON EFFECT OF TEMPERATURE ON METALS.
Lois F. McCombs, Bibliographer, Battelle Memorial Inst., Columbus, Ohio.

The papers of this session will be summarized by H. J. French, Metallurgist, International Nickel Co., Bayonne, N. J., Chairman, Joint High Temperature Committee.

Suggestions, data, etc., on the topics named should be sent to those listed opposite them. Suggestions for other topics not yet included in the above list should be sent to Dr. H. W. Gillett, Director, Battelle Memorial Inst., Columbus, Ohio.

The opportunity to get this group to secure and present exactly the information that is needed by the engineer, should not be neglected. Promptness in presenting these needs is desirable since it is obvious that as much as possible should be included in the preprinted articles of the symposium. All these articles are now in preparation.

1930 Book of A.S.T.M. Standards

Distribution has now been completed of the 1930 edition of the Book of A.S.T.M. Standards. The volume comprises two parts, Part I containing standards relating to metals (1000 pages), and Part II, the standards relating to non-metallic materials (1214 pages).

Society Appointment

Announcement is made of the appointment by the Executive Committee of Mr. G. H. Raitt, Vice-President and General Manager of the Steel Tank and Pipe Co. of California, 1100 Fourth St., Berkeley, Calif., as a member of the Northern California District Committee.

Symposium on Weathering Characteristics

The special Coordinating Committee on Weathering Characteristics consisting of representatives of the several interested standing committees of the Society has been at work for some time on the study of the weathering characteristics of masonry materials. At the suggestion and under the auspices of this special committee a Symposium on Weathering Characteristics of Masonry Materials is being arranged to be held at the annual meeting of the Society in June, with the presentation of the following papers:

- Economic Aspects of Masonry Decay from Weathering Effects. H. S. Brightly.
- Weathering of Concrete. F. R. McMillan.
- The Weathering of Structural Clay Products. J. W. McBurney.
- Weathering of Stone and Slate. G. F. Loughlin and C. H. Behre.
- Weathering of Aggregates. Lowring O. Hanson.
- Weathering Test Procedures for Various Masonry Materials. F. H. Jackson, H. D. Foster and D. W. Kessler.
- Bibliography and Abstracts on Weathering of Masonry. F. O. Anderegg, D. E. Parsons and D. W. Kessler.

Fatigue of Metals Report

Attention is again called to the report of the Research Committee on Fatigue of Metals, reprints of which were distributed during November to all members requesting copies. The committee has prepared an invaluable report setting forth the present status of the information on various phases of fatigue testing. While a large number of members indicated in advance of the annual meeting that they would wish to receive copies of the report when distributed, it is thought that the report may have escaped the attention of some to whom it would be of considerable service. It is suggested that any member who is interested and who has not as yet received a copy of the report communicate with the Secretary-Treasurer.

Meeting of Ready Mixed Concrete Association

An invitation has been extended to all members of the Society to attend the convention of the National Ready Mixed Concrete Association, which will be held at the New Hotel Jefferson, St. Louis, Mo., January 26, 1931.

Special Reprint Pamphlets

Under date of October 25 there was distributed to the members an order blank which listed a number of special reprint pamphlets that have been or are being issued. Of these, the Symposium on Automotive Materials containing the papers and discussion presented at the Detroit Regional Meeting has been distributed. The reports of Committee A-5 on Corrosion of Iron and Steel, Committee D-2 on Petroleum Products and Lubricants, Committee D-9 on Electrical Insulating Materials and the Textile Pamphlet were struck off during the summer months and were made available early in September.

The revised List of Alloys prepared by Professor William Campbell, the Symposium on Aircraft Materials and the Tabular Data on Corrosion-Resistant Alloys are now on press and copies will be available before the close of the year. If any members interested have failed to order copies of these publications it is suggested that they forward their orders immediately to the Secretary-Treasurer.

Reprints of the Rosin Symposium will be available early in January.

Society Interested in Textile Foundation

The members will be interested to know that at the suggestion of Committee D-13 on Textile Materials the Society has offered its facilities in personnel and activities to the Textile Foundation recently established as a result of the passage of the Merritt Bill in Congress. The Government has made a substantial sum available, the interest of which is at the disposal of the Foundation in promoting research in connection with the textile industry. Committee D-13 will keep in close touch with the work of the Foundation.

Conference of Electroplating Standards

All interested members of the Society are invited to attend a conference on electroplating standards to be held at the Palmer House, Chicago, January 17, 1931, at 9 A.M., under the auspices of the Chicago Branch and the Research Committee of the American Electroplaters' Society.

The purpose of the conference is to include both the materials used in the plating industry and the plated products, and to consider in each case whether a specification is needed, what is a reasonable basis for such a specification, whether sufficient information is now available to prepare at least a tentative specification, whether any existing specifications meet the need and to take steps toward the preparation and adoption of suitable specifications by the American Electroplaters' Society, in cooperation with other interested organizations.

Meeting of Society of Rheology

The second annual meeting of the Society of Rheology, an international organization devoted to the "advancement of fundamental and practical knowledge concerning the deformation or flow of matter," is being held on December 29 and 30 at Lafayette College, Easton, Pa. An interesting program of papers covering various phases of viscosity, plasticity, consistency and other flow phenomena has been arranged.

The A.S.T.M. is interested in the work of this society in view of the work of its Committee on Consistency, Plasticity, etc., a subcommittee of Committee E-1 on Methods of Testing. Members of the A.S.T.M. are invited to attend the meeting.

Cement Laboratory Inspection Tour

The Cement Reference Laboratory announces that it is now preparing for another inspection tour among interested cement testing laboratories. It will be recalled that this cement reference laboratory was established at the Bureau of Standards, under the sponsorship of the Government and the Society's Committee C-1 on Cement, to secure improvements in the testing of cement, and that part of its program is to make inspections of laboratories. The inspectors visit only those laboratories which request their services. Those laboratories which desire, but have not already requested inspections should promptly address the Cement Reference Laboratory, Bureau of Standards, Washington, D. C., in order that advantageous schedules may be arranged for the inspectors.

Engineering Index Service

We wish to bring to the attention of our members the Engineering Index Service made available by the American Society of Mechanical Engineers. The Society cooperates with this service through furnishing all of its publications and further is represented on the Index Advisory Board through the Secretary-Treasurer.

The Engineering Index Service is the most comprehensive and complete annotated index of the current engineering literature of the world. It has been steadily expanded, since its inception in 1884, to keep pace with the rapid and extensive developments in engineering. It gives the engineer an essential tool for his work. With it, those interested in any phase of engineering may, with a minimum of time, keep in almost immediate touch with engineering developments throughout the world.

This extensive and valuable service is made possible through the cooperation of the Engineering Societies Library, a free public library of engineering. The engineering profession of this country has built up this large storehouse of organized technical literature until it is now recognized as one of the leading engineering libraries in the world. The 1800 engineering, scientific, technical and trade publications received by the Library, are regularly indexed by the Engineering Index Service. Together with the photoprint and translation services of the Library, the Index places current engineering literature at the disposal of anyone, anywhere. Thus an engineer in Equatorial Africa may follow the stream of engineering progress just as well as a colleague in London or New York.

The scope of the Engineering Index Service is both comprehensive and international. The publications indexed cover all branches of engineering and industry; over half of them come from 37 countries outside the United States. Regular periodicals as well as irregular publications such as society transactions, government bulletins, engineering experiment station reports, research reports, etc., are indexed. Approximately 50,000 annotated index items are produced each year, by a staff of engineers who translate from the 17 foreign languages in which the publications are written.

The Index is available on cards and in annual volumes. The card service is arranged in 223 divisions, any one or more of which may be subscribed to separately. These cards are mailed daily to subscribers of the entire Service, and weekly to subscribers of part of the Service. Each year the cards produced are published in an annual volume of over 2000 pages with an author index of about 20,000 names. These volumes are truly encyclopaedic bibliographies of the current engineering literature of the world.

Cooperation with Institute of Metals

The Institute of Metals (British) is cooperating with the Society's Committee B-6 on Die Cast Metals and Alloys through the appointment of a representative on the committee. The Institute has designated Dr. W. Rosenhain, F.R.S., of the National Physical Laboratory, England, to serve in this connection. Dr. Rosenhain is Chairman of the Die Casting Research Committee of the British Non-Ferrous Metals Research Association, as well as a Past-President of the Institute.

AMERICAN SOCIETY FOR TESTING MATERIALS

BULLETIN

Issued Bi-Monthly

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Number 47

December 20, 1930

Membership Activities

THE Membership Committee of the Executive Committee is launching a campaign to double the membership of the Society and in this important work we want the active cooperation of every member. You may ask "Why should we work for increased membership in the Society?" This question is very completely answered in a folder recently prepared at Society headquarters, a copy of which is being sent to you with this BULLETIN. You will find it of considerable interest.

In order that all members of the Society may have a picture of how the Membership Committee is planning to carry on this work, there is outlined below some of its major activities. These may be divided into four parts which will be discussed separately as follows:

1. THROUGH THE ACTIVITIES OF DISTRICT COMMITTEES.

As has been previously announced, district committees have been formed at Los Angeles, San Francisco, Seattle, Chicago, Detroit and Pittsburgh. These committees have been working more or less actively in extension of membership of the Society and it is planned that an even more intensive campaign will be carried on by them during the next few months. In addition, consideration is being given to the holding of local A.S.T.M. meetings in some of these districts as well as in other localities where district committees have not been formed. In New York, a local committee appointed by the President of the Society is making definite plans for a meeting to be held, probably during the latter part of February, at which three talks will be given by men who are prominent in their particular fields featuring materials problems of interest. It is expected that this method of extending the knowledge of materials will become an established practice in some of the larger industrial centers and that it will be welcomed by members of the Society.

2. THROUGH THE MEDIUM OF STANDING COMMITTEES.

Each standing committee chairman has been asked to appoint a man from his committee who will act as a member of a General Membership Committee working with the main committee. These men will work mostly in their own committees but will, of course, contribute in other ways through helpful suggestions as this work progresses. This committee is now being formed.

3. THROUGH MEMBERS OF THE STAFFS OF INDUSTRIAL ORGANIZATIONS IN CONTACTING WITH OTHERS IN THOSE ORGANIZATIONS WHO ARE NOT MEMBERS OF THE A.S.T.M.

So-called "key men" have been chosen from about 100 organizations which are associated with the A.S.T.M. and are being requested to make personal canvass of their various organizations stressing the value of personal membership in the Society. The suggestion has been made that members of the Society in their contacts with technical men from other companies urge membership in the A.S.T.M. where such memberships are not held at the present time.

4. THROUGH DEVELOPING CLOSER CONTACTS WITH STUDENTS IN UNIVERSITIES.

This is a continuation of a program started some time ago to interest college students in the work of the A.S.T.M. and has been discussed on two or three occasions in the BULLETIN. It is planned to have members discuss A.S.T.M. activities with various faculty members and to develop the possibilities of Society cooperation in providing lecturers on materials to universities having suitable lecture courses.

As stated in the folder, the Society must go forward! While the growth in membership has been steady, it has not kept pace with the rapid increase in importance and prominence given to developments in engineering materials in recent years. All will agree that there is much to be done and we are confident that we will receive your active cooperation.



Chairman, Committee on Membership.

Use of A.S.T.M. Standards

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The committee has just concluded an agreement with Battelle Memorial Institute at Columbus, Ohio, to conduct the technical and metallurgical work involved in this research, under the immediate direction of a Steering Committee consisting of Messrs. Shuman (*Chairman*), Rys, Hill, Durgin, Hamell (*ex-officio*) and Trewin (*ex-officio*). The investigation is to determine the following:

1. The causes of embrittlement encountered in hot-dipped galvanized structural steel.
2. Depending upon the results of the research, to secure data as a basis for specifications for material or treatment suitable for hot-dip galvanizing.
3. To formulate practical shop tests for detecting embrittlement.

The placing of this project at Battelle has brought the Society into cooperative relations with the Utilities Research Commission, which had already placed a similar project at the Institute. The initial work at Battelle on the Society project, which comprises a critical survey of the pertinent literature, program for cooperative mill investigations and procurement and testing of samples for laboratory work, effectively supplements the Research Commission's project; and it is hoped that by next July the work will have progressed so favorably that the two projects can be combined to advantage, thus preventing any possible duplication of effort in the study of this important industrial problem.

That this project has the substantial interest and support of the industries concerned is evident from the following financial contributions that have been made to date towards the expenses of the research:

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Lehigh Structural Steel Co.
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Rolling Mill Group.....	2 940
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Total..... \$12 340

The Society expresses its appreciation of the generous support that is being given in this and other ways to this project. A splendid spirit of cooperation has been shown in the development of this investigation and Committee A-5 hopes to offer a substantial report to the Society at the annual meeting next June.

1930 Proceedings

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By the same token, the *Proceedings* will be especially valuable. The discussion of the many papers in Part II is in greater volume than in previous years and the members will find this discussion of considerable interest as well as the papers and reports that were not distributed at the annual meeting. The discussion, which includes many discussions by letter received subsequent to the annual meeting, will be of particular interest to the members, since it represents material which the members will see for the first time, in contrast to the reports and papers preprinted for the meeting.

Fatigue of Metals Abstracts

Manuscript is now in hand of the second set of abstracts which cover articles dealing with the fatigue of metals appearing in the technical press during the year July 1, 1929, to June 30, 1930. These abstracts have been prepared by the Research Committee on Fatigue of Metals to be of use to those interested in materials both by giving a concise summary of some of the most recent work in this particular field and in giving references to guide those who may wish to study in detail any of the particular items treated.

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AMERICAN SOCIETY FOR TESTING MATERIALS

BULLETIN

Issued Bi-Monthly

Engineers' Club Building, 1315 Spruce St., Philadelphia, Pa.

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Number 47

December 20, 1930

Membership Activities

THE Membership Committee of the Executive Committee is launching a campaign to double the membership of the Society and in this important work we want the active cooperation of every member. You may ask "Why should we work for increased membership in the Society?" This question is very completely answered in a folder recently prepared at Society headquarters, a copy of which is being sent to you with this BULLETIN. You will find it of considerable interest.

In order that all members of the Society may have a picture of how the Membership Committee is planning to carry on this work, there is outlined below some of its major activities. These may be divided into four parts which will be discussed separately as follows:

1. THROUGH THE ACTIVITIES OF DISTRICT COMMITTEES.

As has been previously announced, district committees have been formed at Los Angeles, San Francisco, Seattle, Chicago, Detroit and Pittsburgh. These committees have been working more or less actively in extension of membership of the Society and it is planned that an even more intensive campaign will be carried on by them during the next few months. In addition, consideration is being given to the holding of local A.S.T.M. meetings in some of these districts as well as in other localities where district committees have not been formed. In New York, a local committee appointed by the President of the Society is making definite plans for a meeting to be held, probably during the latter part of February, at which three talks will be given by men who are prominent in their particular fields featuring materials problems of interest. It is expected that this method of extending the knowledge of materials will become an established practice in some of the larger industrial centers and that it will be welcomed by members of the Society.

2. THROUGH THE MEDIUM OF STANDING COMMITTEES.

Each standing committee chairman has been asked to appoint a man from his committee who will act as a member of a General Membership Committee working with the main committee. These men will work mostly in their own committees but will, of course, contribute in other ways through helpful suggestions as this work progresses. This committee is now being formed.

3. THROUGH MEMBERS OF THE STAFFS OF INDUSTRIAL ORGANIZATIONS IN CONTACTING WITH OTHERS IN THOSE ORGANIZATIONS WHO ARE NOT MEMBERS OF THE A.S.T.M.

So-called "key men" have been chosen from about 100 organizations which are associated with the A.S.T.M. and are being requested to make personal canvass of their various organizations stressing the value of personal membership in the Society. The suggestion has been made that members of the Society in their contacts with technical men from other companies urge membership in the A.S.T.M. where such memberships are not held at the present time.

4. THROUGH DEVELOPING CLOSER CONTACTS WITH STUDENTS IN UNIVERSITIES.

This is a continuation of a program started some time ago to interest college students in the work of the A.S.T.M. and has been discussed on two or three occasions in the BULLETIN. It is planned to have members discuss A.S.T.M. activities with various faculty members and to develop the possibilities of Society cooperation in providing lecturers on materials to universities having suitable lecture courses.

As stated in the folder, the Society must go forward! While the growth in membership has been steady, it has not kept pace with the rapid increase in importance and prominence given to developments in engineering materials in recent years. All will agree that there is much to be done and we are confident that we will receive your active cooperation.



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Society Research Activities (*Continued*)

In the October issue of the BULLETIN was given a summary of research projects conducted under Society auspices. As mentioned at that time this did not include investigations conducted in studying specific methods of test or which may lead to the preparation of standard methods of test, as distinguished from research projects carried on to develop new information on the properties of materials. A review of the studies being made by the standing committees on methods of testing is now presented as Part II of the general summary on research activities.

Part II—Research on Methods of Testing

Ferrous and Non-Ferrous Metals

Alternating Current Tests at Low Inductions (Committee A-6).—Tests of magnetic materials used in apparatus operating at high frequencies (audio frequencies) and low inductions such as core materials for audio-frequency transformers, chokes, etc. See preprint, Report of Committee A-6 for 1930 annual meeting.

Tests at High Magnetizing Forces (Committee A-6).—Development of test methods operating at high magnetizing forces in order to test materials such as the new high-cobalt steels. See preprint, Report of Committee A-6 for 1930 annual meeting.

Electrical Tests of Heating and Resistance Alloys (Committee B-4).—Studies of methods of test for thermoelectric power of materials and for temperature coefficient of resistance are being carried on. Test for thermoelectric power developed and issued as Method B 77-30 T, see preprint, Report of Committee B-4 for 1930 annual meeting.

Mechanical Tests of Heating and Resistance Alloys (Committee B-4).—Investigations of a test for uniformity of temper of wire by means of stretch of a helical coil; also a bend test to determine elastic properties of metals and alloys at high temperatures are being carried on. See preprint, Report of Committee B-4 for 1930 annual meeting.

Thermal Analysis of Metals (Committee E-4).—Study of thermal analysis of metals, including methods of testing. Resulted in the development of the Tentative Recommended Practice for Thermal Analysis of Steel (E 14-30 T), see preprint, Report of Committee E-4 for 1930 annual meeting.

Refractories

Abrasion of Refractories at High Temperatures (Committee C-8).—Substantially as stated by title. Fire-clay brick manufactured by several different processes as well as standard silica, magnesite and chrome refractories have been tested at room temperatures and at 1000° C. and 1350° C. See preprint, Report of Committee C-8 for 1930 annual meeting.

Cold Crushing of Fire-Clay Brick (Committee C-8).—Investigation of crushing strength of fire-clay brick in three directions, namely, flat, on edge and endwise, to obtain data for developing a cold crushing test. Flexural strength and porosity also determined in order to study what relation, if any, exists between these various properties. See preprint, Report of Committee C-8 for 1930 annual meeting.

Pyrometric Cone Equivalent (P.C.E.) Test for Refractories (Committee C-8).—Investigation of uniformity and dependability of P.C.E. results obtained with air gas, oxygen-acetylene and granular carbon resistance furnaces in order to standardize the furnace for making P.C.E. determinations. See preprint, Report of Committee C-8 for 1930 annual meeting.

Service Spalling Test of Refractories (Committee C-8).—Study of a service spalling test for refractories that will measure resistance to a variety of factors causing spalling such as vitrification produced by time, temperature and slag coatings and to learn the effect of varying the temperature and rate of cooling. See preprint, Report of Committee C-8 for 1930 annual meeting.

Heat Transfer of Refractory Materials (Committee C-8).—Study of methods of determining and of expressing thermal conductivity. Studies will be made not only on high-temperature refractories but also on materials commonly classed as heat insulators such as silicon carbide, fused alumina. See Report of Committee C-8, *Proceedings*, Vol. 28, Part I, p. 338 (1928).

Concrete

Methods of Analyzing Fresh Concrete (Committee C-9).—Development of test methods for the quantitative determination of the constituents of fresh concrete. See preprint Report of Committee C-9 for 1930 annual meeting.

Field Tests for Concrete (Committee C-9).—Standardization of methods of making field specimens, including sampling of the concrete when soft, the methods of sampling hardened concrete, and the development of field tests for concrete. Investigation of the relations that may exist between the strengths of test specimens of different forms and dimensions. Relation between the compressive strength of test cylinders made in accordance with the A.S.T.M. standard method and prisms removed from slabs of the same mix. Investigations of methods of transverse testing led to development of Tentative Laboratory Method of Making Flexure Tests of Concrete Using a Simple Beam with Center Loading (C 78-30 T). See preprint, Report of Committee C-9 for 1930 annual meeting containing the following papers: "Testing Concrete Cylinders Using Confined Sand Cushion," "Method of Capping Concrete Cylinders Using Sulfur Compound," "Suggested Procedure for Testing Concrete in Which the Aggregate is More than One-Fourth the Diameter of the Cylinders."

Gypsum

Consistency of Gypsum Plaster (Committee C-11).—To determine the suitability of the Vicat apparatus and the present standard procedure used for neat gypsum plaster for determining the consistency of gypsum ready-sanded and gypsum wood-fibered plasters. Investigation just started and not yet reported upon.

Time of Set of Gypsum Neat Plaster (Committee C-11).—A study to determine whether the use of a positive accelerator of constant composition used without sand in determination of time of set of gypsum neat plaster is to be preferred to the present method which employs standard testing sand. This is a new investigation not yet reported upon.

Volume Changes in Neat Gypsum and Gypsum-Fiber Concrete (Committee C-11).—Study of methods for determination of volumetric changes in neat gypsum and gypsum fiber concrete under varying temperature and humidity changes. Investigation just started, no report available.

Sand Content of Set Gypsum Plaster (Committee C-11).—Investigation of the method for determining sand content of set gypsum plaster by the use of sodium chloride solution. No report available.

Protective Coatings

Accelerated Tests for Protective Coatings (Committee D-1).—A study of accelerated weathering tests of protective coatings and correlation of the results with outdoor exposure tests. See preprint, Report of Committee D-1 for 1930 annual meeting.

Petroleum Products and Bituminous Materials

Melting Point of Grease (Committee D-2).—The pressure-flow relationship of greases at various temperatures approaching what is commonly known as the melting point is being studied. See preprint, Report of Committee D-2 for 1930 annual meeting.

Oxidation at High Temperatures (Committee D-2).—Study of a high-temperature oxidation test whose function is to produce in an oil, as rapidly as possible, changes of the same kind as would normally take place during long periods of actual service. Two series of tests already carried out with the Sligh oxidation equipment (see *Proceedings*, Vol. 28, Part I, p. 457 (1928)) and new series using the new precipitation naphtha is now being planned.

Transmission Lubricants Classification (Committee D-2).—An attempt is being made to determine the relationship between viscosity of transmission lubricants under pressure and gear shifting in cold weather. No report available.

Crankcase Dilution (Committee D-2).—Tests on used crankcase oils by two different methods, a vapor-temperature method and steam-distillation method have been made, see *Proceedings*, Vol. 29, Part I, p. 373 (1929). Further work on the steam-distillation method has resulted in the development of the Tentative Method of Test for Dilution of Crankcase Oil (D 322-30 T). See preprint, Report of Committee D-2 for 1930 annual meeting.

Flash Point (Committee D-2).—Consideration is being given to the determination of a flash point method for cut-back asphalts and similar products. This investigation only recently started and not yet reported upon.

Method of Separation of Cut-Back Asphalt (Committee D-4).—Studies of various methods for the separation of cut-back asphalts to determine the amount and character of the base and cut-back. Results reported on tests using an atmospheric distillation method and procedure involving both atmospheric distillation and distillation in a vacuum. See preprint, Report of Committee D-4 for 1930 annual meeting.

Accelerated Weathering Tests of Bituminous Roofing Materials (Committee D-8).—Study of an electrical accelerated weathering test applicable to roofing. This is a new investigation recently organized and not yet reported upon.

Refined Ductility Tests for Bituminous Roofing Materials (Committee D-8).—Substantially as covered by title. No report available at present.

Timber

Fire Tests of Lumber (Committee C-5).—Development of standard methods of conducting fire tests of lumber applicable to treated lumber and lumber in its natural state. Proposed method of test for fire-retardant treated wood developed. See preprint, Report of Committee C-5 for 1930 annual meeting.

Fireproofing of Timber (Committee D-7).—Study of various methods for making timber fire resistive. This is a new investigation not yet reported upon and is related to the development of fire tests of lumber mentioned above.

Moisture in Timber (Committee D-7).—Consideration of methods for making two types of moisture determinations applicable to timber, the first an accurate method for laboratory use and the second a method sufficiently accurate and practical for field use. Proposed methods of test for determination of moisture in timber for use in the laboratory developed in 1929, see *Proceedings*, Vol. 29, Part I, p. 422 (1929). Rapid moisture indicating apparatus for field use being developed, see preprint, Report of Committee D-7 for 1930 annual meeting.

Coal and Coke

Sampling of and Tolerances for Coal (Committee D-5).—A series of sampling experiments to test the accuracy of the present standard method for collecting and reducing gross samples of coal. Experiments will consist of both hand and machine sampling methods and will be made on a number of different coals varying in size, ash content and distribution. Work recently organized, no report available.

Agglutinating Value of Coal (Committee D-5).—A study of the various factors which influence the agglutinating value test of coal with a view to standardizing the test. This is a new investigation not yet reported upon.

Pulverizing Characteristics of Coal (Committee D-5).—Investigation of laboratory methods to determine comparative pulverizing characteristics of different coals in connection with their commercial pulverization as powdered coal. See Report of Committee D-5, *Proceedings*, Vol. 29, Part I, p. 390 (1929).

Foundry Coke Specifications (Committee D-5).—Investigation of physical properties of foundry coke which affect its performance in the cupola with a view to evaluating desirable physical properties for inclusion in specifications. See preprint, Report of Committee D-5 for 1930 annual meeting.

Insulating Materials

Tests of Insulating Varnishes (Committee D-9).—Investigation and development of the following test methods for varnish films: Relation of drying time and baking time to dielectric strength; hardness and oil resistance; acid and alkali resistance; and insulating resistance.

Tests of Molded Insulating Materials (Committee D-9).—Investigation of methods of measuring impact fatigue of molded phenol plastics, and studies of dimensional tolerances suitable for phenol plastic impact test specimens and of the effect of moisture content on impact and transverse strength of phenol plastic test specimens. Investigation of the effect of the type of mold used on the physical strengths of plastic molded test specimens. See preprint, Report of Committee D-9 for 1930 annual meeting.

Tests of Sheet Insulation (Committee D-9).—Investigation and development of methods and apparatus for testing insulating papers, as follows: Procedure for measuring thickness; instruments for determining tearing strength and folding endurance; tests for moisture in impregnated cable paper and air resistance of insulating paper including development of apparatus. Devel-

opment of methods of test for condenser paper and preparation of preliminary specifications.

The following studies of laminated sheet insulating materials are also being conducted: Method for determining the compressibility as a function of time of laminated sheet insulating materials; methods of measuring the modulus of elasticity in compression; the effect of temperature variations on the water absorption of laminated sheet insulating materials; method for testing the arc resistance of laminated sheets; adaptation of methods now used in testing sheet insulating materials to the testing of laminated rods and tubing; development of dielectric strength test at elevated temperatures and a study of the effect of heat on the deterioration of sheet insulating materials, particularly on paper. See preprint, Report of Committee D-9 for 1930 annual meeting.

Thermal Conductivity (Committee D-9).—Study of methods for comparing the thermal conductivities of solid electrical insulating materials in the form of flat sheets. Resulted in development of Tentative Methods D 325–30 T. Round robin tests of a set of samples being conducted to determine reliability of tentative method. See preprint, Report of Committee D-9 for 1930 annual meeting.

Tests of Liquid Insulation (Committee D-9).—Development of tests which are primarily applicable to circuit breaker oils, such as the determination of the amount of gas formed during arc-over, measurement of the amount of carbon formed and precipitated during arc-over, and a test to determine the amount of water precipitated or emulsified during arc-over. Studies of the following tests of insulating oils: neutralization value of both new and used oils; resistance of insulating oils to oxidation (sludge tests) and tests for moisture content. Accurate methods for sampling both used and unused insulating oils also under consideration. See preprint, Report of Committee D-9 for 1930 annual meeting.

Power Factor and Resistivity of Insulating Materials (Committee D-9).—Development and preparation of test methods for measuring dielectric constant and power factor of liquid insulation and of solid insulating materials. See preprint, Report of Committee D-9 for 1930 annual meeting.

Textile Materials

Methods of Testing Cotton (Committee D-13).—Study of factors influencing the strength, length and spinning qualities of cotton fibers looking toward development of acceptable methods of testing the physical properties of these fibers. See preprint, Report of Committee D-13 for 1930 annual meeting.

Tear Resistance and Thickness Tests of Textile Fabrics (Committee D-13).—Substantially as covered by title. Procedure for tear resistance developed, see preprint, Report of Committee D-13 for 1930 annual meeting.

Abrasion Test of Textile Fabrics (Committee D-13).—A comprehensive study of abrasion test methods and machines is being made. See preprint, Report of Committee D-13 for 1930 annual meeting.

Moisture Regain of Textiles and Methods of Measuring Relative Humidity (Committee D-13).—Studies of moisture regain of such textile materials as fabrics, yarns, bale cotton, wool and rayon. Methods of measuring relative humidity of the atmosphere and the effect of moisture on elongation of tire cord are being studied. See preprint, Report of Committee D-13 for 1930 annual meeting.

Slate

Absorption of Slate (Committee D-16).—A study of methods of determining the absorption of slate and of the relation of the effects of drying on the strength and elasticity. See preprint, Report of Committee D-16 for 1930 annual meeting.

Miscellaneous Materials

Study of Very Finely Sized Material (Committee E-1).—Development of methods of procedure for particle size determination of particulate substances such as powdered coal, cement, pigments, by means of liquid elutriation and direct microscopic observation using filar micrometer. Proposed method of particle size determination developed, see preprint, Report of Committee E-1 for 1930 annual meeting.

Bend Test for Metals (Committee E-1).—Study of a quantitative bend test for ductility of metals consisting in evaluating the measurement of the outside fiber elongation at the point of maximum bending. Proposed methods of quantitative bend testing developed, see preprint, Report of Committee E-1 for 1930 annual meeting.

Committee Activities

Shortly after the last annual meeting of the Society, the officers of our standing committees furnished statements concerning the programs of the committees for the year. These statements were of considerable interest, showing that the committees were quite active and although a number of projects had been completed as reported at the annual meeting, other projects were being undertaken. It has not been possible for us to publish all of the statements, but some few notes of interest in connection with some of the committees are given below:

Committee A-1 on Steel is considering new specifications for steel castings with special compositions and heat treatments and is developing specifications for sheet steel for freight cars and for steel plate of firebox quality. Considerable progress is expected during the year on the comprehensive program covering the preparation of specifications for all types of pipe. Requirements for materials for steam and oil service to withstand temperatures up to 1000° C. are being considered as are also specifications for high carbon and alloy-steel tubes.

The Subcommittee on Steel for Welding has gone carefully into the requirements of steel for fusion welding and has prepared a list of present A.S.T.M. specifications covering materials that is believed can be welded satisfactorily by the usual fusion processes now in general use. This list, which appears in the current report of Committee A-1, is not considered final and any suggested additions thereto or comments and criticisms will be welcomed by the committee.

Committee A-8 on Magnetic Analysis has under way an investigation on the correlation of magnetic properties with toughness as indicated by impact tests. The experimental work is nearing completion. In addition various members of the committee are carrying on independent researches in the field of magnetic analysis.

Committee A-10 on Iron-Chromium, Iron-Chromium-Nickel and Related Alloys.—Because of the importance of welding alloys, falling within the scope of Committee A-10, a fact-finding subcommittee has been appointed to survey the field. This special committee has prepared a tabulated list of questions which will be submitted to the American Welding Society to determine whether work of this kind is now being undertaken, and if not, the desirability of entering upon such studies.

The Subcommittee on Chemical Analysis is considering the development of methods of analysis of alloys falling within the scope of Committee A-10.

Committee E-4 on Metallography is making a careful review and comparison of the Standard Methods of Metallographic Testing of Iron and Steel and the Standard Methods of Metallographic Testing of Non-Ferrous Metals and Alloys with a view to making the methods consistent in those sections where the procedures are similar, and bringing the methods up to date.

The set of standard micrographs for grain size of grain diameters, ranging from 0.010 to 0.200 mm., prepared last year, has been incorporated in the Standard Rules Governing the Preparation of Micrographs of Metals and Alloys. X-ray studies of the specimens used in preparing the standard grain size micrographs are being continued by George L. Clark.

A special subcommittee has been appointed to consider the preparation of standard micrographs of tool steel, showing various degrees of spheroidization and contamination by inclusions.

As the result of a recommendation by Committee E-9 on Correlation of Research, the committee is considering undertaking a correlation of data relating to the crystalline struc-

ture of metals as compared with their strength and ductility and other physical properties.

Committee C-4 on Clay and Concrete Pipe is preparing a revision of the Standard Specifications for Clay Sewer Pipe and also a revision of the Standard Specifications for Cement-Concrete Sewer Pipe. The purpose of the revision under consideration is to strengthen and broaden the specifications, to make them clearer and more definite on several points, and to make them conform more closely with the present needs of engineers and the advancing methods of pipe manufacture.

The committee has undertaken, in connection with the preparation of new specifications for reinforced-concrete pipe, a field survey and study of existing reinforced-concrete pipe structures, involving an examination of approximately 191 such structures varying from 24 to 108 in. in diameter for the purpose of securing performance data under service conditions.

Committee C-11 on Gypsum has outlined a very ambitious program of activity for its subcommittees during the coming year. The investigation of the uses of gypsum and anhydrite as a retarder for portland cement will be continued and an effort will be made to correlate the work by different investigators throughout the world on the uses of gypsum and anhydrite.

A revision of the Standard Specifications for Gypsum Plaster Board to include additional sizes of boards other than those included in the specifications is now under consideration. Changes in the methods of testing gypsum plaster board and gypsum wall board are also being considered.

Committee D-16 on Slate.—The activities of the committee are devoted to determining and accurately measuring the physical and chemical characteristics of slate. This work is in charge of ten subcommittees and considerable progress has been made during the past year.

The studies of water absorption of slate are still in progress at five different laboratories and additional tests are being made to determine the relation of the effects of drying on the strength and elasticity of slate. The Subcommittee on Abrasive Hardness has perfected a machine for comparative tests of the wearing qualities of various materials. Results obtained by this machine will be checked by determining the actual wearing of the materials on stairways.

The Subcommittee on Machining and Workability has in the past been instrumental in introducing to the slate industry the wire saw for cutting out blocks of slate. It is now cooperating with the manufacturer of a new alloy which has remarkable hardness and cutting ability to be used in slate finishing mills.

The Subcommittee on Utilization and Performance proposes to investigate the heat insulating qualities of a slate roof and also to determine the stresses that occur in a slate shingle when in actual use on a roof.

The Subcommittee on Standardization of Samples has studied the type and number of test specimens best suited for certain types and uses of slate and has prepared recommendations for structural (machined) slate and for roofing slate.

Committee D-18 on Natural Building Stones has prepared some Proposed Definitions of Terms Relating to Natural Building Stone which it proposes to submit to the Society at the next annual meeting for publication as tentative. The proposed definitions have meanwhile been published in the current report of the committee for information and criticism.

The Subcommittee on Testing Procedure is considering the development of testing procedures for making tensile, shear and elasticity tests, and freezing and thawing and other weathering tests of building stone.

Schedule of Committee Meetings

DATE	COMMITTEE	PLACE
December 19	Technical Committee A on Clay Pipe of Committee C-4 on Clay and Concrete Pipe.....	New York City
January 16	A-1 on Steel.....	Philadelphia
January 19	D-16 on Slate.....	New York City
January 20	Executive Committee.....	Philadelphia
January 29-30	D-2 on Petroleum Products and Lubricants.....	Baltimore, Md.
February	C-8 on Refractories.....	Cleveland, Ohio
February	E-6 on Papers and Publications.....	Philadelphia
February	E-10 on Standards.....	Philadelphia
March 16-20	GROUP COMMITTEE MEETING.....	Pittsburgh, Pa.
March	D-13 on Textile Materials.....	New York City
April 14	Executive Committee.....	Philadelphia

Committee D-13 on Textile Materials

Committee D-13 on Textile Materials held its regular fall meeting at the Massachusetts Institute of Technology, Cambridge, Mass., October 16 and 17. The first day was devoted largely to subcommittee meetings and the second day to the main committee meeting, at which time the subcommittee reports were presented.

The Subcommittee on Yarn plans a complete survey of yarns coming under its jurisdiction and also a revision of tolerances and test methods of tensile strength and elongation.

The Subcommittee on Tire Fabrics is planning to draw up specifications for enameling ducks and leno breaker fabrics. The subcommittee on Hose and Belt Ducks is working on specifications for hose ducks to be followed by belting ducks.

The Subcommittee on Narrow Fabrics is working on specifications for 0.007 in. electrical cotton tape.

The Subcommittee on Rayon reported revision of methods for identifications of various types of rayon.

The Subcommittee on Machines is making a comprehensive study of abrasion machines.

The Subcommittee on Humidity submitted Proposed Tentative Methods of Measuring Relative Humidity.

Meeting of Committee on Exposure Tests

A meeting has been called by the chairman, Dr. W. Blum, chemist, United States Bureau of Standards, of a special joint committee of members of the research committee of the American Electroplaters' Society and of Subcommittee VIII on Field Tests of Metallic Coatings of the Society's Committee A-5 on Corrosion of Iron and Steel. The meeting is to be held at the Palmer House in Chicago on Friday, January 16, 1931. Members of the Society's Committee A-5 on Corrosion of Iron and Steel and Committee B-3 on Corrosion of Non-Ferrous Metals and Alloys especially interested in corrosion tests have been invited to attend. The meeting will discuss tentative arrangements made by the American Electroplaters' Society to conduct exposure tests on plated coatings in the A.S.T.M. locations.

Any member of the Society who is interested in this subject is invited to attend.

New Members to December 15, 1930

The following 14 members were elected from November 1 to December 15, 1930, making the total membership, exclusive of student members, 4474:

Company Member (1)

American Bitumuls Co., P. L. Fahrney, District Manager, 4200 O'Donnell St., Baltimore, Md.

Individual and Other Members (10)

Bauer, E. E., Associate in Civil Engineering, University of Illinois, 204 Materials Testing Lab., Urbana, Ill.
 Colburn, D. S., Manager, Service Bureau, Marquette Cement Mfg. Co., Suite 1331, 140 S. Dearborn St., Chicago, Ill.
 Corley, R. A., President, Corley-DeWolfe Co., 323 Pine St., Elizabeth, N. J.
 Gardner, G. O., Superintendent, Ash Grove Lime and Portland Cement Co., Chanute, Kans.
 Kennedy, T. Dowsley, Managing Director, The William Kennedy and Sons, Ltd., Owen Sound, Ont., Canada.
 Mackie, I. C., Engr. of Tests, Dominion Steel and Coal Corp., Ltd., Dominion Iron and Steel Division, Sydney, N. S., Canada.
 Rawson, L. A., Chief Engr., Structural Division, Emsco Derrick and Equipment Co., 6701-7101 S. Alameda St., Los Angeles, Calif.
 Rutgers University, Engineering Experiment Station, P. L. Hoover, Assistant Director, New Brunswick, N. J.
 Shen, Nye, Works Manager, Tongshan Locomotive Works, Peking-Mukden Ry., Tongshan, North China.
 University of Arizona Library, Tucson, Ariz.

Junior Members (3)

Buckley, James F., Assistant to President, Kalamazoo Fdy. and Mch. Co., 600 E. Main St., Kalamazoo, Mich.
 Quinn, Maloy, County Engr., Clay Center, Kans.
 Rodgers, Eben, Jr., Alton Brick Co., Alton, Ill.

Student Membership

The Student Membership on December 15, 1930, was 260, distributed as follows:

Rensselaer Polytechnic Inst.....	189
Cooper Union.....	23
Cornell University.....	9
University of Michigan.....	8
Detroit Institute of Technology.....	6
Georgia School of Technology.....	5
Massachusetts Institute of Technology.....	3
University of California.....	3
University of Nebraska.....	2
University of Wisconsin.....	2
Carnegie Institute of Technology.....	1
Colorado School of Mines.....	1
Columbia University.....	1
New York University.....	1
Temple University.....	1
University of Alabama.....	1
University of Chicago.....	1
University of Illinois.....	1
University of Minnesota.....	1
Washington University.....	1

Personals

J. M. WATSON, member since 1914, has been elected President of the American Society for Steel Treating.

F. O. ANDEREGG has opened an office as Consulting Engineer in Pittsburgh.

W. E. SHINN, formerly of the Bureau of Standards, is now Professor of Weaving and Designing at Clemson College.

G. S. CHILES, Chief Mechanical Engineer, Scullin Steel Co., has opened offices as Consulting Engineer at Ashtabula, Ohio.

W. F. GRAHAM has severed his connection with the Ohio Brass Co., Mansfield, Ohio, and is now Technical Director, Caskey Brass and Bronze Works, Inc., Philadelphia, Pa.

A. E. WHITE, Professor of Metallurgical Engineering, and Director of Department of Engineering Research, University of Michigan, recently gave a talk over the radio dealing with the need of research in industry. The talk was entitled "A Challenge to Industry."

Richard Moldenke

1864-1930

In the death of Dr. Richard Moldenke on November 17 the Society lost one of its most esteemed members. He was a charter member of the Society and has served long and faithfully on many of its committees. He was secretary of the Committee on Cast Iron from the time of its organization in 1903 until 1914, when he was elected chairman. He served in the latter capacity until 1926, when he was made honorary chairman. He also served on the Society's Committees on Malleable Castings, on Steel and on the Committee on Coal and Coke. He was elected a member of the Executive Committee for the term 1911 to 1913 and was Vice-President of the Society from 1913 to 1915.

His fame as a metallurgist and as a specialist in foundry practice was world wide. He was retained as a consultant by many industrial establishments. His broad experiences in practical and scientific matters always was given freely, and he felt, at all times, his responsibility to the industry did not cease with the performance of the routine functions of his office. He was a prolific writer on foundry and metallurgical subjects. His work in these lines include a number of technical papers, a text book "Principles of Iron Foundry" and a book on "Productions of Malleable Castings."

Doctor Moldenke was an honorary member of the American Foundrymen's Association and the Institute of British Foundrymen, also the Newark, New England, Pittsburgh and Southern Foundrymen's Association, the British Iron and Steel Institute and the Foundrymen's Association of Germany.

But aside from his technical achievements, Doctor Moldenke will be remembered for his delightful personality. His teaching of the foundry art through his writings and contributions to the technical discussions at various association meetings have added greatly to the sum total of foundry knowledge. His picturesque personality long will be remembered throughout the foundry industry of the world.

Necrology

We announce with regret the death of seven members and representatives:

- HARRY E. BROOKBY, Consulting Engineer, 720 Central St., Evanston, Ill. Member since 1928.
 H. M. MACKAY, Dean, Faculty of Applied Science, McGill University, Montreal, P. Q., Canada. Member since 1908.
 JAMES C. MCGUIRE, President, James C. McGuire and Co., Inc., 25 W. Forty-third St., New York City. Member since 1907.
 RICHARD MOLDENKE, Consulting Metallurgist, Watchung, N. J. Member since 1896.
 THOMAS SPROULE, General Superintendent of Distribution, Public Service Electric and Gas Co., Room 725, 80 Park Place, Newark, N. J. Member since 1928.
 H. F. WAHR, President, Mesta Machine Co., Box 1124, Pittsburgh, Pa.
 J. T. WALLIS, Assistant Vice-President of Operation, The Pennsylvania Railroad Co., 131 Broad Street Station, Philadelphia, Pa. Member since 1912.

List of Publications

Proceedings, Volume 30 (1930).—The Proceedings for 1930 in two parts: Part I, committee reports with discussions and new and revised tentative standards (1336 pp.); Part II, technical papers with discussions (1085 pp.). Prices to non-members: paper \$12.00, cloth \$13.00, half-leather \$16.00. To members for extra copies: \$7.00, \$8.00 and \$11.00, respectively.

Book of A.S.T.M. Standards.—Issued triennially. The 1930 edition, two parts (2214 pp.), contains the 427 Standards adopted by the Society. Issued in two Parts—Part I, Metals; Part II, Non-Metals. Prices, including the subsequent receipt of supplements issued in the intervening years, to non-members: either Part, cloth \$7.50; both Parts, \$14.00; half-leather \$9.00 and \$17.00. To members for extra copies: either Part, cloth \$5.00; both Parts \$9.00; half-leather \$6.50 and \$12.00.

Book of A.S.T.M. Tentative Standards.—The 1930 edition (864 pp.) contains 155 tentative standards issued by the Society. Prices to non-members: paper \$7.00, cloth \$8.00. To members: \$4.50 and \$5.50, respectively.

Separate Standards and Tentative Standards.—Separate copies of all standards and tentative standards are available. The price is 25 cents for a single copy and in lots up to 50. Larger quantities are furnished at lower prices.

Complete Sets of Proceedings from 1902 to 1930, inclusive (with the exception of Vols. I and III). Special prices are made to members for extra copies and for complete sets. Binding in paper, cloth or half-leather.

Index to Proceedings, containing both an author and subject index of committee reports and technical papers and discussions. Index to Vols. I-XII, 1898-1912 (158 pp.). Prices to non-members \$1.50 in cloth, \$2.00 in half-leather; to members: \$1.00 in cloth, \$1.50 in half-leather. Index to Vols. XIII-XX, 1913-1920 (189 pp.). Prices to non-members: \$2.50 in cloth, \$3.50 in half-leather; to members: \$1.75 in cloth, \$2.75 in half-leather. Index to Vols. 21-25, 1921-1925 (224 pp.). Prices to non-members: \$2.50 in cloth, \$3.50 in half-leather; to members: \$1.75 in cloth, \$2.75 in half-leather.

Special Reprints from Proceedings

Symposium on Effect of Temperature upon the Properties of Metals: Four papers summarizing existing knowledge presented at Cleveland meeting of A.S.T.M. and A.S.M.E., May, 1924, complete with discussion and valuable bibliography (184 pp.). Price \$1.50.

Symposium on Corrosion-Resistant, Heat-Resistant and Electrical-Resistance Alloys: Thirteen papers on all phases of the subject presented at A.S.T.M. meeting at Atlantic City, June, 1924, containing three large insert tables of data on ninety of these alloys, complete with discussion (269 pp.). Price, \$2.00.

Report on the Significance of Tests of Petroleum Products, submitted with the 1928 report of Committee D-2 on Petroleum Products and Lubricants, containing a discussion of the various methods of test applicable to petroleum products (54 pp.). Price, 50 cents.

1930 Report of Committee A-5 on Corrosion of Iron and Steel, contains results of inspection of the atmospheric corrosion tests on copper-bearing and non-copper-bearing sheets, the total immersion tests on similar material and the reports of the more recent investigation on atmospheric exposure tests of galvanized material.

1930 Report of Committee D-2 on Petroleum Products and Lubricants, containing 33 standards and 14 tentative methods of test and one tentative definition of terms relating to petroleum and petroleum products (283 pp.). Price, \$1.25.

Committee D-13 Pamphlet on Textile Materials: A special reprint pamphlet containing all of the standard and tentative specifications and methods of test of the Society relating to textile materials (122 pp.). Price 80 cents.

Symposium on Aircraft Materials: Contains the eighteen papers, with discussion, presented during the Symposium on Aircraft Materials held at the A.S.T.M. meeting at Atlantic City, June, 1930 (about 200 pp.). Price \$2.00 in cloth.

A List of Alloys: A revised list prepared by William Campbell for Committee B-2 on Non-Ferrous Metals and Alloys, giving the compositions of some 1650 alloys, most of which are non-ferrous, including the physical properties of some typical alloys (60 pp.). Price, \$1.50 in paper, \$2.00 in cloth.

Data on Corrosion-Resistant Alloys: A tabulation of essential data furnished by manufacturers on the physical properties and corrosion-resistant properties of some 100 corrosion-resistant alloys, both ferrous and non-ferrous. Put out in the form of 11 large tables in a special binder. Price, \$1.50.

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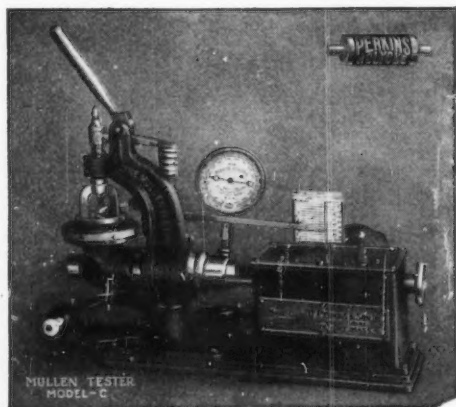
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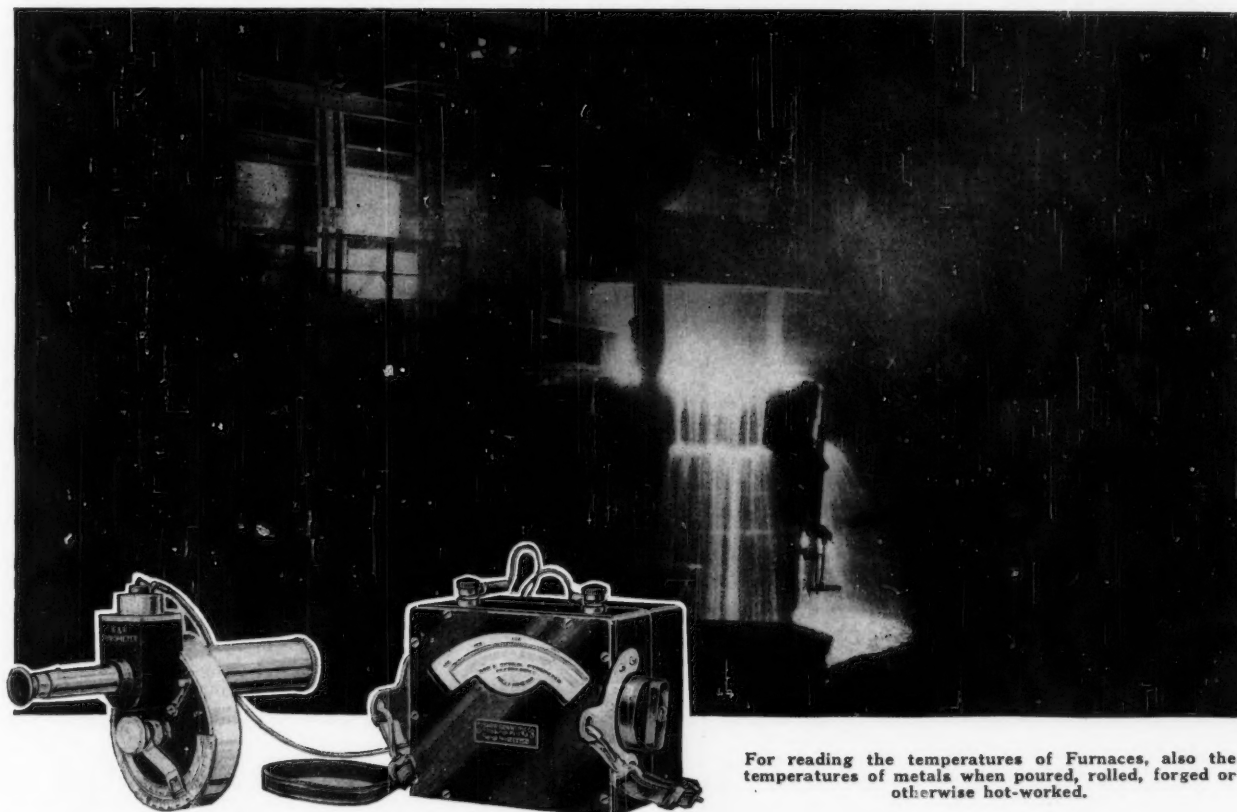
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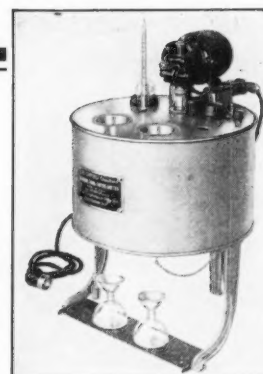
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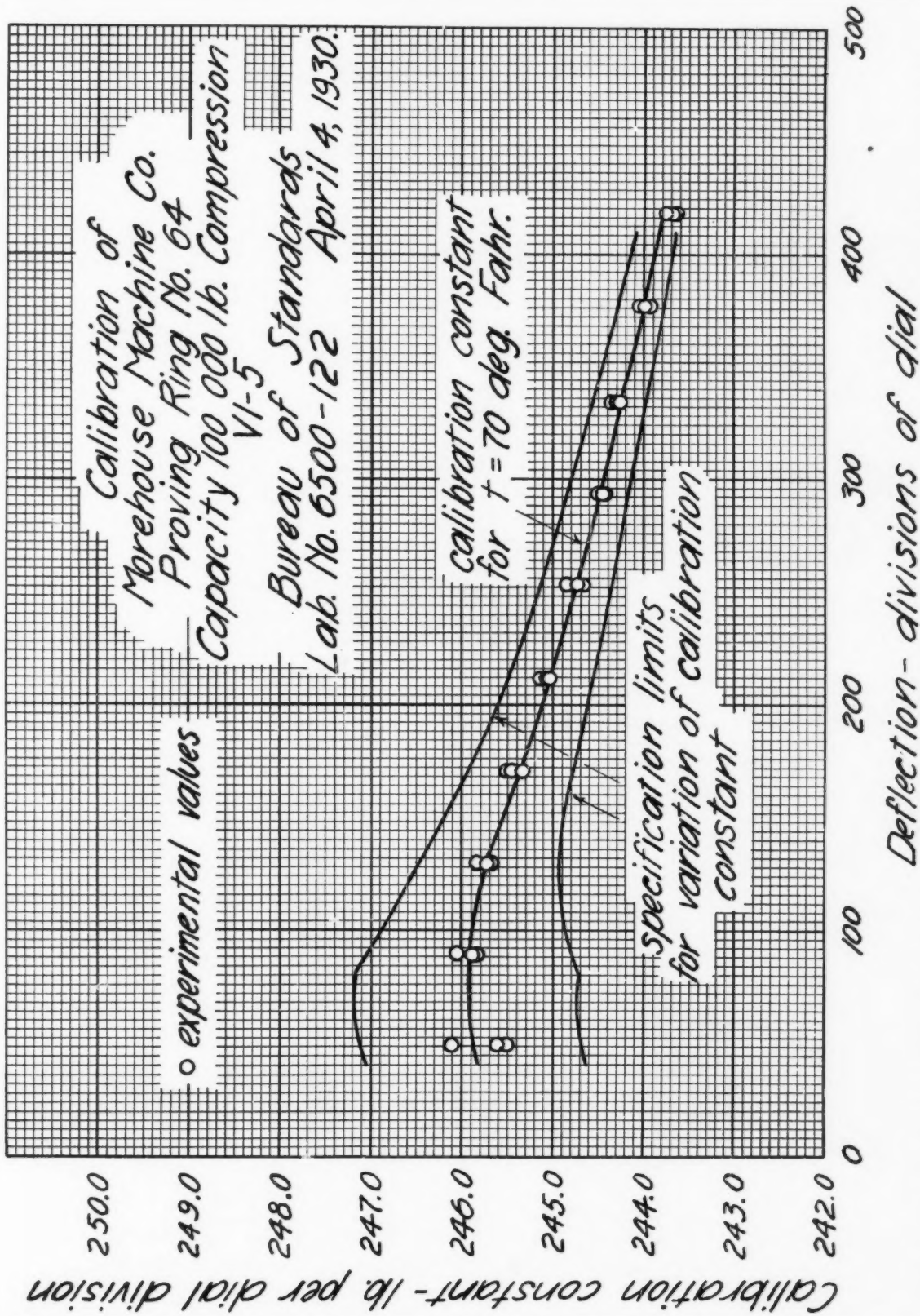
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INSTALLED IN THE LEADING RESEARCH LABORATORIES



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Corrected Brinell figures obtained through all ranges. The load is applied, maintained and released automatically. There is no damage to finished work and no risk of error in readings. It is applicable to large or small pieces and provides a means of rapid checking to specified limits.

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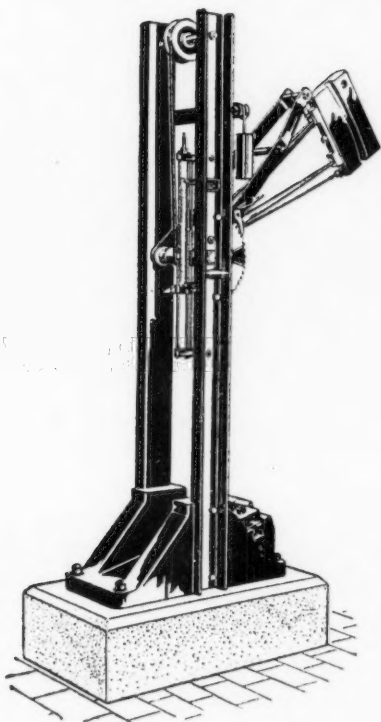
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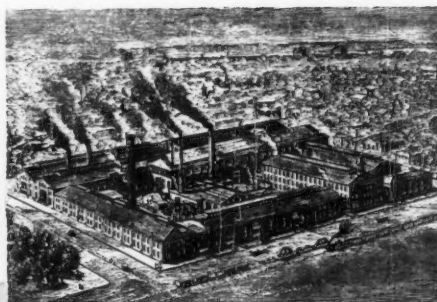
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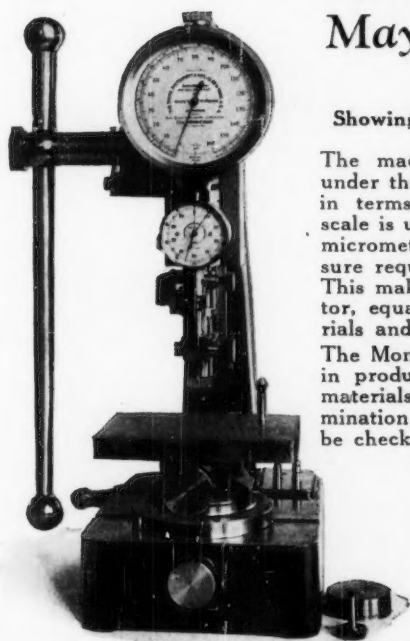
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Showing Automatically Qualitative and Quantitative Values, Including Meyer Analysis

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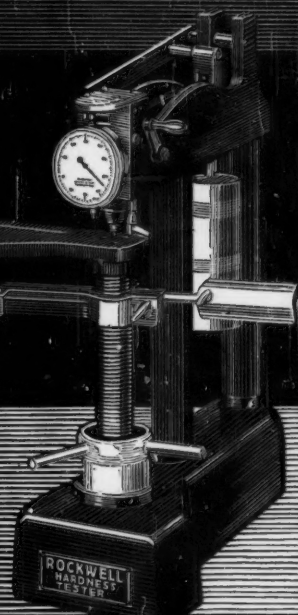
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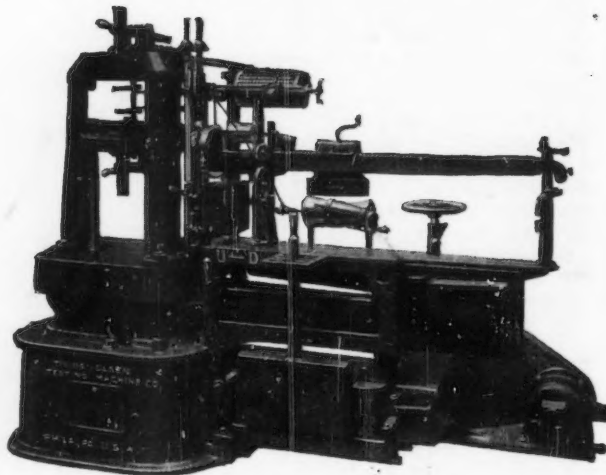
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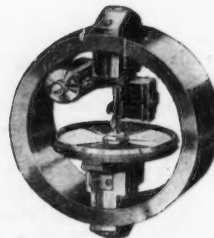
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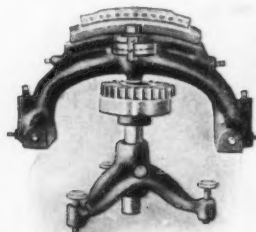
Motor driven. Production type. Fast, accurate, and easily operated.



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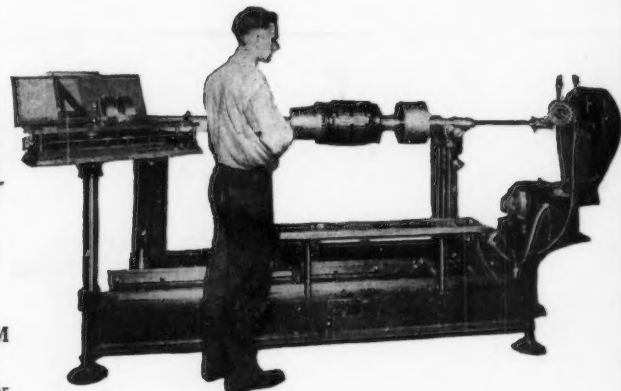
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